

fornia boundary. It has also been collected at Glenbrook on Lake Tahoe, not far from the California boundary.

The northern part of the North Coast Range region in California is an area which continues, under exploration, to yield species additional to the flora of California, south limit stations of species having their greatest development in western Oregon or western Washington. *Pedicularis Howellii* Gray has already been recorded from the Siskiyou Mountains but *P. contorta* Benth. and *P. bracteosa* Benth. are new to California. *P. contorta* has been discovered near Thompson Peak in the Salmon Mountains at about 7000 feet (Alexander & Kellogg 288), while *P. bracteosa* has been found on Grizzly Creek, northern Trinity Co. (Alexander & Kellogg 281), at upper Campbell Lake, Shackelford Creek, Siskiyou Co. (Butler 1775) and on the summit above Cold Spring, Marble Mt. region (Butler 42).

Berkeley, Sept. 1, 1929.

THE LIFE FORM AND HABITAT OF ERIOGONUM DESERTICOLA WATS.

I. T. WEEKS

Last Sunday I spent considerable time among the sand hills above Grav's Well and Yuma, and covered many acres of *Eriogonum* "forests". Not a leaf was seen and undoubtedly none can be had until the growing season arrives next spring. Some of my notes on this field work will be of interest to you. They are, in part, almost startling to me. Armed with camera and yard-stick, I measured and "shot" several plants that furnish a good idea of what *Eriogonum deserticola* at its best is like. My journey covered what seems to be its center of distribution in the Colorado Desert of southeastern California. From my observations, I would say that it is, pre-eminently, a species of the shifting sand-dune country. No plants were found on absolutely hard or solid ground, and few where the top soil, at least, was not sandy enough to be moved a little by strong winds. Individuals always reached their maximum development on the firmer and higher parts of the great range of shifting dunes in the eastern Colorado Desert; not, of course, on the crests or steep slopes that travel too fast to support any plant life.

The eastern limit of the species coincides with the extreme eastern border of the sand-dunes, beyond which the surface soil is hard and rocky. Westward, individuals were found for about twenty-five miles, that is to within about two miles of the East Highline Canal or to within about eight miles of Holtville. However, as one nears the western limit, the colonies become more scattered, since the locations are apparently governed by the presence of a suitable sandy surface. As to the north and south limits, I learned nothing definite, but would suppose this species extended well into Baja California

and that the northern limit is determined by the range of sand-dunes, a distance of at least fifty miles.

Measurements taken of individuals where they reached their greatest size are truly astounding for a member of the genus *Eriogonum* as I know it. The habitats of most individuals show either a recent removal of surface sand up to several feet, or the opposite, an addition of sand, until only an intricate mass of branches protrude through the surface. In fact, comparatively few plants were found where the surface of the ground seemed "normal". Tap-roots, exposed by the wind, often stood erect one to three feet high, with few or no side roots; but more often, due to a smaller diameter or more removal of supporting sand, they leaned over and made a great arch with the arch supported at both ends by the soil.

These arches, more or less symmetrical, are at least three feet high in the centre, with six feet or more of root-length exposed. At the crown-end where branching takes place, abrupt angles occur, with often very many branches of usually quite small diameter. The tallest plant measured, with normal ground surface, was five feet seven inches high. The greatest horizontal expanse, measured on the ground, where the lower and longest branches procumbently spread on opposite sides of the trunk, was sixteen feet. The trunk sent you was by no means exceptional in size, as I found many larger in diameter and a few that far exceed that one in diameter and length. On this trip I collected one trunk about four and one-half inches in diameter, and nearly four feet tall.

In general, old specimens are procumbent and the lower branches are apt to be greatly extended along the surface of the sand. The branching is usually quite intricate in old plants, but the smaller branches show the typical branching common to the genus.

Imperial Valley, Sept. 20, 1929.

HARRIET A. WALKER

From March, 1905 to November, 1927 Miss Harriet A. Walker served as helper in the Herbarium of the University of California. During her vacations she made collections of the native plants for the herbarium, the duplicates being distributed to other institutions. Her specimens have thus been frequently quoted by specialists monographing various groups. While most of her excursions were in the San Francisco Bay region, she sometimes went further afield, to the Mendocino Range and to the Sierra Nevada about Blue Cañon and Cisco. Born July 27, 1845, in eastern New York, the daughter of a Congregational minister, she graduated from Mt. Holyoke College and was for twelve years an assistant in the Department of Botany at Wellesley College. She died June 26, 1929. *Cirsium Walkerianum* Petrak was named for her.—W. L. J.